

PARK7/DJ1 Rabbit mAb

Catalog # AP74923

Product Information

Application	WB, IHC-P, IHC-F, FC, IP
Primary Accession	Q99497
Reactivity	Rat, Human, Mouse
Host	Rabbit
Clonality	Monoclonal Antibody
Isotype	IgG
Conjugate	Unconjugated
Purification	Affinity Purified
Calculated MW	19891

Additional Information

Gene ID	11315
Other Names	PARK7
Dilution	WB~~1:1000-1:5000 IHC-P~~N/A IHC-F~~N/A FC~~1:20-1:50 IP~~1:20
Format	Liquid in 50mM Tris-Glycine(pH 7.4), 0.15M NaCl, 40%Glycerol, 0.01% sodium azide and 0.05% BSA.
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

Protein Information

Name	PARK7 (HGNC:16369)
Function	Multifunctional protein with controversial molecular function which plays an important role in cell protection against oxidative stress and cell death acting as oxidative stress sensor and redox- sensitive chaperone and protease (PubMed: 12796482 , PubMed: 17015834 , PubMed: 18711745 , PubMed: 19229105 , PubMed: 20304780 , PubMed: 25416785 , PubMed: 26995087 , PubMed: 28993701). It is involved in neuroprotective mechanisms like the stabilization of NFE2L2 and PINK1 proteins, male fertility as a positive regulator of androgen signaling pathway as well as cell growth and transformation through, for instance, the modulation of NF-kappa-B signaling pathway (PubMed: 12612053 , PubMed: 14749723 , PubMed: 15502874 , PubMed: 17015834 , PubMed: 18711745 , PubMed: 21097510). Has been described as a protein and nucleotide deglycase that catalyzes the deglycation of the Maillard adducts formed between amino groups of proteins or nucleotides and reactive carbonyl groups of glyoxals (PubMed: 25416785 , PubMed: 28596309). But this function

is rebutted by other works (PubMed:[27903648](#), PubMed:[31653696](#)). As a protein deglycase, repairs methylglyoxal- and glyoxal-glycated proteins, and releases repaired proteins and lactate or glycolate, respectively. Deglycates cysteine, arginine and lysine residues in proteins, and thus reactivates these proteins by reversing glycation by glyoxals. Acts on early glycation intermediates (hemithioacetals and aminocarbinals), preventing the formation of advanced glycation endproducts (AGE) that cause irreversible damage (PubMed:[25416785](#), PubMed:[26995087](#), PubMed:[28013050](#)). Also functions as a nucleotide deglycase able to repair glycated guanine in the free nucleotide pool (GTP, GDP, GMP, dGTP) and in DNA and RNA. Is thus involved in a major nucleotide repair system named guanine glycation repair (GG repair), dedicated to reversing methylglyoxal and glyoxal damage via nucleotide sanitization and direct nucleic acid repair (PubMed:[28596309](#)). Protects histones from adduction by methylglyoxal, controls the levels of methylglyoxal- derived argininine modifications on chromatin (PubMed:[30150385](#)). Able to remove the glycations and restore histone 3, histone glycation disrupts both local and global chromatin architecture by altering histone-DNA interactions as well as histone acetylation and ubiquitination levels (PubMed:[30150385](#), PubMed:[30894531](#)). Displays a very low glyoxalase activity that may reflect its deglycase activity (PubMed:[22523093](#), PubMed:[28993701](#), PubMed:[31653696](#)). Eliminates hydrogen peroxide and protects cells against hydrogen peroxide-induced cell death (PubMed:[16390825](#)). Required for correct mitochondrial morphology and function as well as for autophagy of dysfunctional mitochondria (PubMed:[16632486](#), PubMed:[19229105](#)). Plays a role in regulating expression or stability of the mitochondrial uncoupling proteins SLC25A14 and SLC25A27 in dopaminergic neurons of the substantia nigra pars compacta and attenuates the oxidative stress induced by calcium entry into the neurons via L-type channels during pacemaking (PubMed:[18711745](#)). Regulates astrocyte inflammatory responses, may modulate lipid rafts-dependent endocytosis in astrocytes and neuronal cells (PubMed:[23847046](#)). In pancreatic islets, involved in the maintenance of mitochondrial reactive oxygen species (ROS) levels and glucose homeostasis in an age- and diet dependent manner. Protects pancreatic beta cells from cell death induced by inflammatory and cytotoxic setting (By similarity). Binds to a number of mRNAs containing multiple copies of GG or CC motifs and partially inhibits their translation but dissociates following oxidative stress (PubMed:[18626009](#)). Metal-binding protein able to bind copper as well as toxic mercury ions, enhances the cell protection mechanism against induced metal toxicity (PubMed:[23792957](#)). In macrophages, interacts with the NADPH oxidase subunit NCF1 to direct NADPH oxidase-dependent ROS production, and protects against sepsis (By similarity).

Cellular Location

Cell membrane {ECO:0000250|UniProtKB:Q99LX0}; Lipid-anchor {ECO:0000250|UniProtKB:Q99LX0}. Cytoplasm. Nucleus. Membrane raft {ECO:0000250|UniProtKB:O88767}. Mitochondrion. Endoplasmic reticulum. Note=Under normal conditions, located predominantly in the cytoplasm and, to a lesser extent, in the nucleus and mitochondrion. Translocates to the mitochondrion and subsequently to the nucleus in response to oxidative stress and exerts an increased cytoprotective effect against oxidative damage (PubMed:[18711745](#)). Detected in tau inclusions in brains from neurodegenerative disease patients (PubMed:[14705119](#)). Membrane raft localization in astrocytes and neuronal cells requires palmitoylation

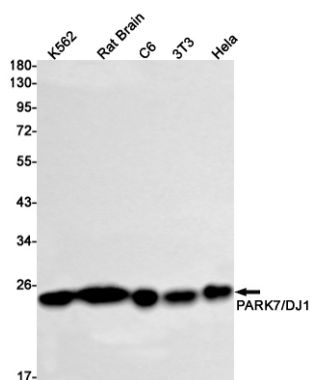
Tissue Location

Highly expressed in pancreas, kidney, skeletal muscle, liver, testis and heart. Detected at slightly lower levels in placenta and brain (at protein level). Detected in astrocytes, Sertoli cells, spermatogonia, spermatids and spermatozoa. Expressed by pancreatic islets at higher levels than surrounding exocrine tissues (PubMed:[22611253](#)).

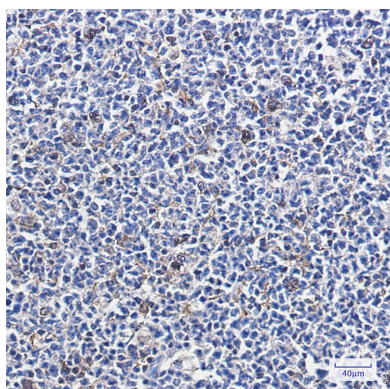
Background

Plays a role in regulating expression or stability of the mitochondrial uncoupling proteins SLC25A14 and SLC25A27 in dopaminergic neurons of the substantia nigra pars compacta and attenuates the oxidative stress induced by calcium entry into the neurons via L-type channels during pacemaking. It cooperates with Ras to increase cell transformation, it positively regulates transcription of the androgen receptor, and it may function as an indicator of oxidative stress.

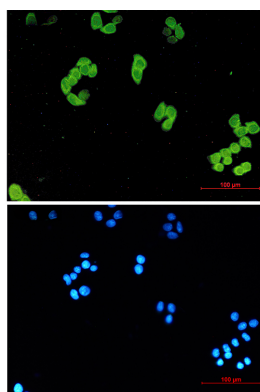
Images



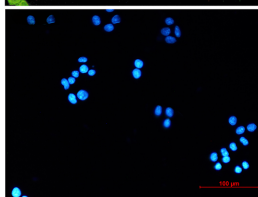
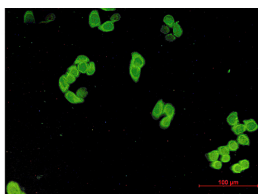
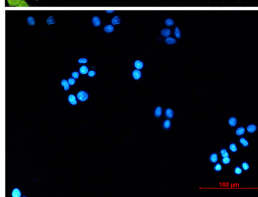
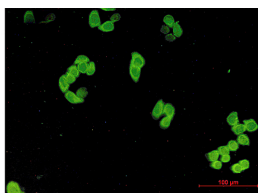
Western blot analysis of PARK7/DJ1 in K562, rat Brain, C6, 3T3, Hela lysates using PARK7/DJ1 antibody.



Immunohistochemistry analysis of paraffin-embedded Human tonsil using PARK7/DJ1 antibody. High-pressure and temperature Sodium Citrate pH 6.0 was used for antigen retrieval.



Immunocytochemistry analysis of PARK7/DJ1 (green) in Hela using PARK7/DJ1 antibody, and DAPI (blue)



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